INSTALLATION GUIDE FOR ELECTROSTATIC DISSIPATIVE RUBBER FLOORING

WARNING: Installers are required to be experienced with resilient rubber flooring and familiar with installations that require grounding of static electricity; always apply good professional judgement for a safe and high-quality installation. To clarify any doubts or to obtain requirements for substrates other than concrete, please contact the Technical Department at Mondo America, Inc.:
United States 1-800-361-3747 • Canada 1-800-663-8138 • technical@mondousa.com

DISCLAIMER: Please refer to page 14.

Where protection from electrostatic discharge (ESD) is needed (e.g., operating rooms, server rooms, electronic assembly plants, etc.), Mondo's electrostatic dissipative rubber flooring provides a specific and reliable resistance solution. Mondo's electrostatic dissipative rubber flooring must be fully glued to the substrate using Mondo EC 60 conductive epoxy adhesive. ***CAUTION: electrostatic dissipative rubber flooring is not suitable for wet areas.***

The provided instructions are proposed as a basic installation guide; installation of grounding system shall be done in accordance with applicable national electrical code and local regulations (e.g., ANSI, NEC, CSA/CEC, OSHA/CCOHS, etc.). The Licensed Electrician/Electrical Engineer must determine the preferred layout for the copper strips, with respect to the electrical grounding system location, in addition to being responsible for the connection and testing of all electrical grounding systems. Effective grounding that meets all codes and regulations must be confirmed prior to the installation of the electrostatic dissipative rubber flooring. ***WARNING: USE OF CONDUCTIVE ADHESIVE AND GROUNDING SYSTEMS ARE MANDATORY TO PROPERLY DISSIPATE STATIC ELECTRICITY.***

1. SURFACE PREPARATION

This document is intended for indoor installations over concrete. The **concrete substrate's surface must be properly prepared** to provide a satisfactory bonding surface for the adhesive being used to install the electrostatic dissipative rubber flooring. **NEVER begin installation until all conditions are satisfactory.**

Before installing resilient flooring, all parties must familiarize themselves with the detailed requirements of Mondo's current Substrate Surface Preparation manual, in addition to consulting the current copy of ASTM F710 (*Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring*) for industry requirements. Effective substrate preparation is key in obtaining a good bonding surface for the adhesive that will be used to install resilient flooring.

Electrostatic dissipative rubber flooring installation shall not commence until the building is enclosed and all other trades have completed their interior work.

CAUTION: For operating rooms (OR), it is recommended that the flooring be glued to the slab for optimal performance; whenever possible, avoid installing flooring over weaker substrate preparation products that may offer less resistance to heavy rolling and/or static loads (e.g., operating table) used atop.

1.1 General Contractor (GC)

a) Ensure that no sealers or curing compounds have been applied to or mixed into the concrete substrate.

b) New concrete must be allowed to cure a minimum of 28 days, having a compressive strength of at least 3500 psi (25 MPa). However, consider that drying time is typically 4 weeks for every 1-inch thickness of slab (Example: a 6" slab will take around 24 weeks to adequately dry).

c) GC is responsible for providing finished concrete, properly prepared and ready to receive electrostatic dissipative rubber flooring. Concrete substrates must be dry, sufficiently porous, smooth, clean and free of bond inhibitors (paint, wax, dust, oil or grease, sealer or curing agent, surface hardener, solvent, asphalt, old adhesive residues, etc.). Concrete surfaces that are powdery or scaly are not acceptable. ***CAUTION: Bond inhibitors are to be mechanically removed (e.g., light to medium shot-blasting for ICRI CSP #3 to #5). NEVER use abatement chemicals; they can contaminate the concrete and prevent adhesion.*** Flooring Contractor must be advised, in writing, of any bond inhibitor having been removed so that removal effectiveness can be verified with a mat bond test. Refer to current published copy of ASTM F3311 (*Standard Practice for Mat Bond Evaluation of Performance and Compatibility for Resilient Flooring System Components Prior to Installation*).

d) The concrete substrate's surface must be smooth and level within a tolerance of 1/8" (3 mm) in a 10-foot (3.05 m) radius. NOTE: Mondo does not recognize the "F" numbers (FF: floor flatness, FL: floor levelness). Imperfections and irregularities (holes, voids, bumps, cracks, depressions, etc.) must be corrected, and surfaces must be smooth and even before proceeding with the installation. Only use high quality Portland cement based patching and leveling compounds, respecting the manufacturer's instructions for compatibility and use with resilient electrostatic dissipative rubber flooring products and conductive adhesives. Mondo recommends a magnesium trowel finish. ***CAUTION: While a smooth surface is desired, a shiny, slick, non-porous or over-porous slab is not acceptable and will require additional preparation prior to installing resilient flooring. Once the concrete surface preparation is complete, you should have a CSP (Concrete Surface Profile) of about 1.***

e) GC to consult copper strip manufacturer for any special substrate preparation requirements (e.g., if a special primer or other needs to be applied to the surface), prior to delivering the finished slab to Flooring Contractor. Flooring Contractor must always be advised, in writing, of any required and/or performed special substrate preparation.

f) Concrete substrates must be dry and free of any moisture problem (e.g., hydrostatic pressure, osmotic blistering, alkali silica reaction conditions, etc.). Moisture and pH tests must be performed on all concrete substrates. Never attempt substrate moisture testing and flooring installation until the jobsite's ambient conditions (ambient temperature and ambient relative humidity) are constant and representative of the building's operating conditions. ***WARNING: Failure to provide stable ambient conditions on the jobsite will produce inaccurate moisture testing results, in addition to negatively impacting the adhesive's cure and the flooring system's performance.*** Turn on the heating, ventilation, and air-conditioning (HVAC) unit 7 days prior to performing moisture tests, both for accurate test results and stable ambient conditions for the installation. GC is responsible for maintaining room and base temperatures stable prior to moisture testing, during moisture testing, prior to flooring installation, during the installation, and as well as a minimum of 48 hours after the flooring has been completely installed. The acceptable ambient temperature range is between 65°F and 86°F (18°C and 30°C), with fluctuations maintained inside of a ±5°F (±3°C) limit. The acceptable ambient relative humidity range is between 35% and 55%. Always ensure that the substrate's surface temperature remains a minimum of 10°F (5°C) above the dew until 36 hours after the resilient electrostatic dissipative rubber flooring products have been completely installed. Refer to page 13 DEW POINT.

g) For any surface preparation product and adhesive specified, moisture and alkalinity test results must always be within the manufacturer's expressed product tolerances. It is recommended that tests be conducted by third-party professionals and effectively documented. ***CAUTION: MONDO WILL NOT GUARANTEE THE ADHESION OF ITS ELECTROSTATIC DISSIPATIVE RUBBER FLOORING TO A SUBSTRATE WITH A RELATIVE HUMIDITY CONTENT AND/OR MOISTURE VAPOR EMISSION RATE AND/OR PH THAT ARE OUTSIDE OF THE TOLERANCE LIMITS FOR THE SPECIFIED ADHESIVE.*** Never attempt testing until the HVAC unit has been operational for at least 7 days and/or that the site conditions (ambient temperature and relative humidity) are constant and representative of the building's operating conditions. Do not proceed with the installation if the pH of the substrate is less than 7 or greater than 11 (using a pH meter with flat surface electrode). The concrete's moisture vapor emission rate (MVER) must not exceed 8 lb/1,000 ft^2 (3.63 kg/92.9 m^2) in 24

hours, when tested per the current published copy of ASTM F1869 (*Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride*). The relative humidity in the concrete slab must not exceed 85%, when tested per the current published copy of ASTM F2170 (*Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes*), with the aid of a Wagner moisture meter. ***CAUTION: Moisture tests will help confirm whether the slab is sufficiently dry to proceed with the flooring installation, but it does not mean that the slab will always remain dry.***

h) When stored onsite, flooring products supplied must be protected from exposure to harmful weather conditions and must be safely stored on a clean, dry, flat surface. Store rolls of electrostatic dissipative rubber flooring upright. Store tiles of electrostatic dissipative rubber flooring on a flat surface, carefully protecting corners and edges. Climate controlled storage is recommended. Storage temperature must not be below 40°F (4°C) or above 100°F (38°C). ***CAUTION: Avoid prolonged storage or additional material trimming may be required prior to installation.***

i) All trades must protect flooring products, adhesives, and accessories from damage, including exposure to harmful weather conditions. Products supplied must not suffer damage during delivery, storage and handling (e.g., dents, scratches, excessive compression or warping, chipped edges, etc.). Damaged products cannot be used/installed.

j) ***CAUTION: The integrity of the installation must be preserved; protect against direct sunlight/UV exposure that will negatively affect curing and adhesion processes.*** Wherever flooring materials may be exposed to direct sunlight, preserve the integrity of the flooring system's components by ensuring proper UV protection is in place. Ensure that glass doors, glass façades and windows are fitted with low-e glass (low emissivity) that blocks 99% of harmful rays. It is important to mitigate direct sunlight to ensure proper adhesive cure; if you are unsure, cover all glass with cardboard, blinds, roller shades, curtains, or other suitable material at least 24 hours prior to the installation, for the duration of the installation, and at least up to 72 hours after the complete installation.

1.2 Flooring Contractor and Electrical Contractor

a) Flooring Contractor to confirm that all jobsite conditions are adequate and that the surface preparation has been completed, prior to installing the copper strips and the electrostatic dissipative rubber flooring. Effective substrate preparation is key in obtaining a good bonding surface for the adhesive that will be used to install Mondo electrostatic dissipative rubber flooring. ***CAUTION: DO NOT proceed with the installation of the electrostatic dissipative rubber flooring until all jobsite conditions are met and surface preparation is complete.*** Refer to Mondo's current published substrate surface preparation manual for all related requirements, in addition to consulting the current published copy of ASTM F710 (*Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring*) for industry requirements.

b) Vacuum the entire substrate surface prior to installation (remove all dust, loose dirt and debris). ***CAUTION: DO NOT use sweeping compounds. If desired, use damp (not wet) sawdust to help with sweeping.*** Flooring Contractor is responsible for ensuring a clean working space before proceeding with the installation of the copper strips and the electrostatic dissipative rubber flooring.

c) Flooring products supplied must be protected from exposure to harmful weather conditions and must be safely stored on a clean, dry, flat surface. Store rolls of electrostatic dissipative rubber flooring upright. Store tiles of electrostatic dissipative rubber flooring on a flat surface, carefully protecting corners and edges. Climate controlled storage is recommended. Storage temperature must not be below 40°F (4°C) or above 100°F (38°C). ***CAUTION: Avoid prolonged storage or additional material trimming may be required prior to installation.***

d) All trades must protect flooring products, adhesives, and accessories from damage, including exposure to harmful weather conditions. Products supplied must not suffer damage during delivery, storage and

handling (e.g., dents, scratches, excessive compression or warping, chipped edges, etc.). Do not use/install products that are damaged.

e) Flooring Contractor to thoroughly inspect concrete surface for any visible defects (such as cracks, mounds or depressions, rough areas, variations in levelness, etc.). Immediately report any defect, in writing, to the GC; defects must be corrected prior to installation.

f) Flooring Contractor to confirm moisture and alkalinity test results, verifying that they are acceptable (within the tolerance limits of all preparation products and adhesives specified). Refer to section 1.1 point g) for the tolerance limits of Mondo EC 60 conductive epoxy adhesive. It is highly recommended that you safekeep copies of all tests for a minimum of three (3) years.

g) Flooring Contractor to confirm concrete surface is free from any bond inhibitor (paint, wax, dust, oil or grease, sealer or curing agent, surface hardener, solvent, asphalt, old adhesive residues, etc.), and that the concrete slab is ready receive a electrostatic dissipative rubber flooring system. Refer to section 1.1 point c) for details regarding bond inhibitors. Safekeeping copies of all communications regarding the presence of a bond inhibitor is highly recommended, even when corrected.

h) Electrical Contractor shall execute/recommend the proper location of copper strips with respect to the electrical grounding system location. ***CAUTION: All grounding systems are to be connected and tested by a Licensed Electrician/Electrical Engineer, following national code and local regulations.*** Effective grounding that meets all applicable regulations must be confirmed prior to the installation of the electrostatic dissipative rubber flooring. Electrical Contractor to advise Flooring Contractor when it is safe to proceed with the flooring installation.

i) It is recommended that the Flooring Contractor perform an installation mock-up/test area to verify proper conductive properties of the adhesive and system grounding; the Licensed Electrician/Electrical Engineer is responsible for confirming suitability and safety.

2. GENERAL INSTALLATION

WARNING: Do not skip over section 1 SURFACE PREPARATION; section 1 contains crucial instructions.

a) Flooring Contractor must have all materials delivered to the jobsite no less than 48 hours prior to their use/installation, so that all electrostatic dissipative rubber flooring products, adhesives, and accessories may effectively acclimate to in-service conditions.

b) Before you proceed with the installation, verify that all products delivered correspond to what was specified for the project (verify physical characteristics such as type, color, thickness, format, dimensions, etc.). Prior to installation, ensure flooring is free of apparent defects/imperfections and color variations; ***CAUTION: NO CLAIMS WILL BE ACCEPTED AFTER THE ELECTROSTATIC DISSIPATIVE RUBBER FLOORING HAS BEEN TRIMMED AND/OR INSTALLED.***

c) Rubber flooring must be removed from its packaging and allowed to relax overnight; avoid cutting or trimming flooring materials prior to this relaxation period.

d) ***CAUTION: Always preserve the integrity of the installation by ensuring it has been protected from direct sunlight/UV exposure that will negatively affect the curing process.*** Wherever resilient flooring may be exposed to direct sunlight, preserve the integrity of the flooring system's components by ensuring proper UV protection is in place. Ensure that glass doors, glass façades and windows have been fitted with low-e glass (low emissivity) that blocks 99% of harmful rays. It is important to mitigate direct sunlight to ensure proper adhesive cure; if you are unsure, request that GC cover all glass with cardboard, blinds, roller shades, curtains, or other

suitable material at least 24 hours prior to the installation, for the duration of the installation, and at least up to 72 hours after the complete installation.

e) ***CAUTION: Always pay attention to the dew point. You must ensure that the substrate remains a minimum of 10°F (5°C) above the dew point during the entire installation, as well as for 36 hours after the completed installation. Refer to page 13 DEW POINT.***

f) It is highly recommended to perform a mat bond test on all substrate surfaces that will be receiving resilient electrostatic dissipative rubber flooring to confirm suitability and adequate bond strength. Refer to current published copy of ASTM F3311 for detailed instructions or communicate with Mondo's Technical Department.

g) Square the room and make the first chalk line down the center of the room parallel to the length of the room. Grid out copper strip placement prior to securing the tape so that it's easier when you begin.

h) Thin copper strips, 3/8 in (1 cm) wide and 0.003 in (0.08 mm) thick, must be installed in each room/area designated to receive electrostatic dissipative rubber flooring, following the placement grid pattern recommended by the Licensed Electrician/Electrical Engineer and project requirements. In general, copper strips shall follow the perimeter of the room at about 8 in (20 cm) from the wall, and it is recommended to install 1 (one) grounding strip at each 1000 ft^2 (93 m^2) of a slab-on-grade and to install 1 (one) grounding strip at each 500 ft^2 (46 m^2) in the case of a suspended slab. Carefully measure the distance from the grounding connection prior to cutting the copper strips to ensure sufficient length to go up the wall/column to the grounding connection. Cut strips to desired length, peel back paper backing from tape and carefully apply the copper strips so that they are perfectly flat, smoothing them over with a soft cloth (or by hand: but be mindful of sharp edges if you do it this way). ***WARNING: TEST AND CONFIRM GROUNDING GRID SUITABILITY WITH ELECTRICAL CONTRACTOR PRIOR TO SPREADING ADHESIVE AND ENCAPSULATING THE COPPER STRIPS.***

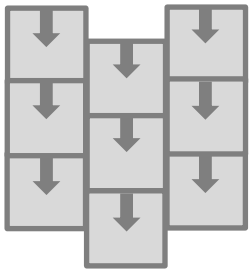
i) Depending on the flooring's specified format, proceed to either section 2.1 if you are installing electrostatic dissipative rubber tiles or section 2.2 if you are installing electrostatic dissipative rubber sheets.

2.1 Electrostatic Dissipative Rubber Tiles

WARNING: Do not skip over section 1 SURFACE PREPARATION and section 2 GENERAL INSTALLATION; sections 1 and 2 contain crucial instructions.

a) Mondo recommends that you **position tiles in an ASHLAR PATTERN** (staggered corners) for best results. See figure 1. In general, it is easier to install the tiles in this pattern and it produces better results, but always refer to the architectural plans for the specific layout required. Line up first row of tiles to chalk line. When you lay the second row, be sure to remember to align profiles, if applicable. If a multiple color layout has been specified, double-checking your measurements will avoid serious problems. Tiles should always be installed in the same direction for best aesthetic results; refer to the material's backing (underside) to view and confirm material direction. Full pallets of tiles will be numbered and it's best to follow pallet sequence. ***CAUTION: In a rare case where you would need to flash cove tiles, you will have to use the "boot method" for external corners.***

Figure 1. LAYOUT - ASHLAR PATTERN



b) Rough cut material to size of room prior to relaxation, then allow the material to relax overnight (12 hours or longer, depending on building temperatures, to allow for proper material relaxation). Any precision cut will need to occur after the relaxation period is complete.

c) Jobsite and substrate conditions can affect adhesive spread rates; it may be necessary to adjust your trowel size or to perform additional substrate surface preparation. It is recommended that you replace trowels periodically, to ensure that the teeth of the trowel do not get worn down and that adhesive spread remains consistent. **Use a 1/32 in x 1/16 in x 1/32 in (0.8 mm x 1.6 mm x 0.8 mm) trowel with U-shaped notches** to install electrostatic dissipative rubber flooring. Trowel dimensions as shown indicate depth/width/space. Always ensure that the selected trowel allows for a minimum of 95% adhesive transfer to the flooring's backing; adjust the size of your trowel if needed to obtain the best results.

d) Mondo's electrostatic dissipative rubber flooring products are installed with Mondo EC 60 conductive epoxy adhesive. Refer to the adhesive's current technical data sheet (TDS) for all product details and instructions. Consult the adhesive's current safety data sheet (SDS) for all safety and protection requirements.

e) Create a mixing station for the adhesive, carefully selecting a space away from the installation area to avoid spills and splatter onto the flooring product; demark and protect mixing station with a 6' x 6' scrap piece of material, Kraft paper or another suitable item.

f) Mondo EC 60 conductive epoxy adhesive has two components that will need to be combined. Pour the contents of the smaller bottle identified as Part B into the larger pail identified as Part A. After the Part B bottle has been emptied out, screw its cap back on and invert it for a minute, to extract the maximum amount of liquid. ***CAUTION: The complete contents of all parts of this adhesive must be used at once. The ratio has been strictly determined and any modification to the dosage will interfere with airing the adhesive.***

g) Using a variable low-speed mixer (< 300 rpm, min. 6 amp), combine until a smooth, homogeneous, and creamy consistency is obtained (this should not take more than 2-3 minutes). Remember to scrape the sides of the pail (Part A) to ensure that the entire content is effectively mixed. ***CAUTION: Improper mixing may result in a weak bond and over mixing will cause the catalyst to set up too fast (thus reducing pot life and entrapping air which may reduce bond performance).***

h) **The adhesive must be applied immediately after mixing** (otherwise it will thicken and be much harder to trowel). The electrostatic dissipative rubber flooring must be installed while the adhesive is wet. **The maximum working time is 30 minutes.** ***CAUTION: Do not spread more adhesive than can be covered with material within 30 minutes. Remember that ambient temperature and relative humidity, as well as the substrate's surface temperature, directly affects the setting time (e.g., "The warmer it gets, the faster it sets; the cooler it gets, the slower it sets.").***

i) Holding the trowel at a 45-degree angle, spread the adhesive evenly over the surface of the substrate, gently troweling over any copper strip. Proper adhesive transfer to the material backing should be confirmed periodically by lifting the flooring material and inspecting its backing. Special care must be taken so that the adhesive is not applied too thin (limiting bond) or too thick (creating mounds).

j) Carefully place flooring into the wet adhesive. ***CAUTION: never "flop" material into the wet adhesive because this can cause both adhesive displacement and entrapment of air bubbles***. Confirm proper adhesive transfer by periodically lifting the flooring material to inspect its backing for a minimum of 95% adhesive transfer, both for bond strength and for effective conductivity. As you work, remain mindful of adhesive displacement. ***WARNING: Walking on, standing on or kneeling on freshly laid flooring before the adhesive has had the chance to properly cure will cause displacement of the adhesive, which in return may cause indentations and/or bubbling.*** Protect the integrity of the installation by using knee boards as you work and 1/8 in Masonite or 1/4 in plywood if walking over.

k) Since the material is resilient, we recommend that you manually work the seams so that they are perfectly flat and tight (butted together for a nice fit, but never pressured to avoid causing peaking seams).

l) Immediately clean up any accidental adhesive spills or smudges as they occur, while the adhesive is still wet, using denatured alcohol. Dried adhesive residue will be extremely difficult to remove, if not impossible. ***CAUTION: Never use solvent-based products, as they can discolor and/or dull the resilient flooring.***

m) As you're installing, all entrapped air pockets must be removed from under the flooring material before proceeding with the next row of material. Slowly roll the adhered tiles with a 75 lb (34 kg) roller, in two directions, starting with the width first and then the length. This must be done soon after gluing. After rolling, inspect the flooring material for any remaining air pockets. **The best way to inspect for missed air bubbles is to turn off all overhead lights and aim a direct spotlight at the flooring's surface**. Immediately address/roll any missed areas. ***CAUTION: The roller must be clean and in good condition; embedded contaminants and/or defects in the roller's surface can transfer damage onto the flooring's surface.***

n) After rolling, check again for any oozing adhesive from seams. Refer to point l) above. Use 2-inch (5 cm) masking tape to help close any small gaps in the seams and to keep material in place while the adhesive sets. ***CAUTION: Never use duct tape. Duct tape will chemically react with the flooring and leave permanent surface residue/stains.***

o) Because the instant grab of Mondo EC 60 adhesive is low, you'll need to ensure that the material remains flat into/in full contact with the adhesive until it fully sets. ***CAUTION: It may be necessary to weigh down any stubborn seam(s) or other problematic area(s) with grey bricks, keeping weights in place 12 to 24 hours, depending on ambient conditions and their effects on curing speed.*** If necessary, apply one row of grey concrete utility bricks (2 in x 4 in x 8 in) or small oblong sandbags over any stubborn seams or areas that need assistance to remain flat into the adhesive while it sets.

p) Depending on ambient conditions and their effects on the adhesive's final setting time, at a minimum no foot traffic shall be allowed onto the surface of the electrostatic dissipative rubber flooring for a period of 12 hours after its installation, as well as no heavy traffic or rolling loads (carts, equipment, gurney, etc.) shall be allowed onto the flooring for a period of 36 hours after its installation. Block access to newly installed areas during these periods or protect the system's integrity by covering it with 1/8" Masonite or 1/4" plywood. ***CAUTION: Failure to respect the circulation requirements listed above can lead to displacement of the fresh adhesive under the resilient flooring and can result in unwanted voids, air pockets/bubbles and/or visible mounds.***

q) Wait a minimum of 36 hours post-installation before performing the initial wash on your new flooring system. Always refer to Mondo's current maintenance guidelines for detailed instructions on proper care of electrostatic dissipative rubber flooring. ***CAUTION: Do not apply surface treatments or coatings to the electrostatic dissipative rubber flooring that may affect the electrical resistance properties of the product.***

2.2 Electrostatic Dissipative Rubber Sheets

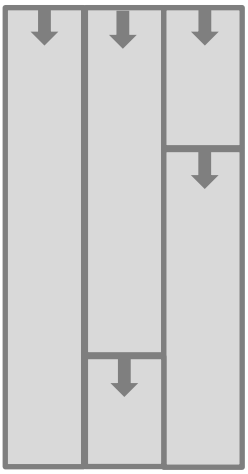
WARNING: Do not skip over section 1 SURFACE PREPARATION and section 2 GENERAL INSTALLATION; sections 1 and 2 contain crucial instructions.

CAUTION: Some of the steps in this section depend on if heat welding of seams has been specified or not. MONDO does not require that you heat weld the seams of electrostatic dissipative rubber sheets; however, if heat welding has been specified for the project, you'll need to prepare your material seams differently from standard applications.

a) Respecting the number sequence of the rolls, unroll the flooring in the same direction and **position the rubber sheets in an ASHLAR PATTERN** for best results. See figure 2. In general, this recommended pattern produces better results, but please refer to the architectural plans for the required layout. Line up first row

of material to chalk line. When you lay the second row, be sure to remember to align profiles, if applicable. Sheets should always be installed in the same direction for best aesthetic results; refer to the material's backing (underside) to view and confirm material direction. ***CAUTION: If you need to flash cove the material, you will have to use the "boot method" for external corners.***

Figure 2. LAYOUT - ASHLAR PATTERN



b) Rough cut material to size of room prior to relaxation, then allow the material to relax overnight (12 hours or longer, depending on building temperatures, to allow for proper material relaxation). Any precision cut will need to occur after the relaxation period is complete.

c) All rubber sheets have head/end seams and side seams that will need to be trimmed; stagger and overlap the material in preparation {overlap head/end seams about 3 in (7.6 cm) and side seams about 1 ½ in (3.8 cm)}. Since each room/space is different, the area's layout and installation pattern will logically dictate how to best move forward with organizing your material trims. Typically, it's easier to start with trimming the seams of the rubber sheets first, then moving to perimeters like around columns, doorways, etc. **Cutting and dry fitting material prior to adhesion is a must**. If a multiple color layout has been specified, double-checking your measurements will avoid serious problems.

d) Seam preparation:
   i. If heat welding of rubber sheet seams isn't specified, all seams must be straightedged and butted or scored, or simply double cut.
   ii. If heat welding of rubber sheet seams is specified, the uncut edge must overlap the trimmed one by 3/4 in (1.75 cm) to allow for recessed scribing. ***CAUTION: If heat welding of sheet seams has been specified, please immediately jump to section 3 to carefully read through all recommendations for seam preparation, prior to proceeding with material trimming.***

e) Using an underscriber and a utility knife with a hook blade, trace cut the overlapped sheet. Each side of the rubber sheet needs to be trimmed a minimum of 3/4 in (1.75 cm) to remove the factory edge. For head and end seams, using the same procedure as for the side (long) seams, trim off a minimum of 1.5 in (3.75 cm) from both ends of the roll. ***CAUTION: Head/end seams must be adjusted without applying too much pressure, while ensuring that they are perfectly closed, because pressured seams will cause peaking.***

f) Jobsite and substrate conditions can affect adhesive spread rates; it may be necessary to adjust your trowel size or to perform additional substrate surface preparation. It is recommended that you replace trowels periodically, to ensure that the teeth of the trowel do not get worn down and that adhesive spread remains consistent. **Use a 1/32 in x 1/16 in x 1/32 in (0.8 mm x 1.6 mm x 0.8 mm) trowel with U-shaped notches** to install electrostatic dissipative rubber flooring. Trowel dimensions as shown indicate depth/width/space.

Always ensure that the selected trowel allows for a minimum of 95% adhesive transfer to the flooring's backing; adjust the size of your trowel if needed to obtain the best results.

g) Mondo's electrostatic dissipative rubber flooring products are installed with Mondo EC 60 conductive epoxy adhesive. Refer to the adhesive's current technical data sheet (TDS) for all product details and instructions. Consult the adhesive's current safety data sheet (SDS) for all safety and protection requirements.

h) Create a mixing station for the adhesive, carefully selecting a space away from the installation area to avoid spills and splatter onto the flooring product; demark and protect mixing station with a 6' x 6' scrap piece of material, Kraft paper or another suitable item.

i) Mondo EC 60 conductive epoxy adhesive has two components that will need to be combined. Pour the contents of the smaller bottle identified as Part B into the larger pail identified as Part A. After the Part B bottle has been emptied out, screw its cap back on and invert it for a minute, to extract the maximum amount of liquid. ***CAUTION: The complete contents of all parts of this adhesive must be used at once. The ratio has been strictly determined and any modification to the dosage will interfere with airing the adhesive.***

j) Using a variable low-speed mixer (< 300 rpm, min. 6 amp), combine until a smooth, homogeneous, and creamy consistency is obtained (this should not take more than 2-3 minutes). Remember to scrape the sides of the pail (Part A) to ensure that the entire content is effectively mixed. ***CAUTION: Improper mixing may result in a weak bond and over mixing will cause the catalyst to set up too fast (thus reducing pot life and entrapping air which may reduce bond performance).***

k) **The adhesive must be applied immediately after mixing** (otherwise it will thicken and be much harder to trowel). The electrostatic dissipative rubber flooring must be installed while the adhesive is wet. **The maximum working time is 30 minutes.** ***CAUTION: Do not spread more adhesive than can be covered with material within 30 minutes. Remember that ambient temperature and relative humidity, as well as the substrate's surface temperature, directly affects the setting time (e.g., "The warmer it gets, the faster it sets; the cooler it gets, the slower it sets.").***

l) Holding the trowel at a 45-degree angle, spread the adhesive evenly over the surface of the substrate, gently troweling over any copper strip. Proper adhesive transfer to the material backing should be confirmed periodically by lifting the flooring material and inspecting its backing. Special care must be taken so that the adhesive is not applied too thin (limiting bond) or too thick (creating mounds).

m) Carefully place flooring into the wet adhesive. ***CAUTION: never "flop" material into the wet adhesive because this can cause both adhesive displacement and entrapment of air bubbles.*** Confirm proper adhesive transfer by periodically lifting the flooring material to inspect its backing for a minimum of 95% adhesive transfer, both for bond strength and for effective conductivity. As you work, remain mindful of adhesive displacement. ***WARNING: Walking on, standing on or kneeling on freshly laid flooring before the adhesive has had the chance to properly cure will cause displacement of the adhesive, which in return may cause indentations and/or bubbling.*** Protect the integrity of the installation by using knee boards as you work and 1/8 in Masonite or 1/4 in plywood if walking over.

n) Since the material is resilient, we recommend that you manually work the seams so that they are perfectly flat and tight (butted together for a nice fit, but never pressured to avoid causing peaking seams).

o) Immediately clean up any accidental adhesive spills or smudges as they occur, while the adhesive is still wet, using denatured alcohol. Dried adhesive residue will be extremely difficult to remove, if not impossible. ***CAUTION: Never use solvent-based products, as they can discolor and/or dull the resilient flooring.***

p) As you're installing, all entrapped air pockets must be removed from under the flooring material before proceeding with the next row of material. For sheet flooring, the recommended method that produces the best results is by using a push bar. To create your push bar, take a piece of 2 x 4 wood (about 12 to 18 inches long) and wrap it in CLEAN (do not rub gritty materials over flooring) thick material, upholstery foam or carpet. See figure 3. Remove entrapped air by pressing out from under the flooring, pushing from the center of the sheet outwards. Afterwards, inspect the flooring material for any remaining air pockets. **The best way to inspect for missed air bubbles is to turn off all overhead lights and aim a direct spotlight at the flooring's surface.** Immediately address any missed areas.

Figure 3. PUSH BAR

q) After pushing out the air, check again for any oozing adhesive from seams. Refer to point o) above. Use 2-inch (5 cm) masking tape to help close any small gaps in the seams and to keep material in place while adhesive sets. ***CAUTION: Never use duct tape. Duct tape will chemically react with the flooring and leave permanent surface residue/stains.***

r) Because the instant grab of Mondo EC 60 adhesive is low, you'll need to ensure that the material remains flat into/in full contact with the adhesive until it fully sets. ***CAUTION: It may be necessary to weigh down any stubborn seam(s) or other problematic area(s) with grey bricks, keeping weights in place 12 to 24 hours, depending on ambient conditions and their effects on curing speed.*** If necessary, apply one row of grey concrete utility bricks (2 in x 4 in x 8 in) or small oblong sandbags over any stubborn seams or areas that need assistance to remain flat into the adhesive while it sets.

s) Depending on ambient conditions and their effects on the adhesive's final setting time, at a minimum no foot traffic shall be allowed onto the surface of the electrostatic dissipative rubber flooring for a period of 12 hours after its installation, as well as no heavy traffic or rolling loads (carts, equipment, gurney, etc.) shall be allowed onto the flooring for a period of 36 hours after its installation. Block access to newly installed areas during these periods or protect the system's integrity by covering it with 1/8" Masonite or 1/4" plywood. ***CAUTION: Failure to respect the circulation requirements listed above can lead to displacement of the fresh adhesive under the resilient flooring and can result in unwanted voids, air pockets/bubbles and/or visible mounds.***

t) Wait a minimum of 36 hours post-installation before performing the initial wash on your new flooring system. Always refer to Mondo's current maintenance guidelines for detailed instructions on proper care of electrostatic dissipative rubber flooring. ***CAUTION: Do not apply surface treatments or coatings to the electrostatic dissipative rubber flooring that may affect the electrical resistance properties of the product.***

3. HEAT WELDING SHEET SEAMS (Optional)

Heat welding seams is only relevant to sheet flooring. ***CAUTION: do not attempt to weld tiles.*** Mondo does not require that you heat weld the seams of electrostatic dissipative rubber sheets; however, if heat welding has been specified for the project, you'll need to follow the listed instructions. ***CAUTION: Heat welding can only begin after a minimum of 24 hours following the complete installation of the electrostatic dissipative rubber flooring sheets (once the adhesive has set and it is safe to proceed with heat welding)***.

WARNING: This procedure calls for an experienced installation and welding technician. If you have never heat welded rubber sheets, never attempt the procedure without first receiving training, practicing extensively, and

having qualified on-site supervision initially. Proper training and multiple practice sessions on scrap material are essential in developing the required skills for successful seam welding. Please communicate with Mondo's Technical Department if you have any questions or doubts, and you may additionally consult the current copy of ASTM F1516 (*Standard Practice for Sealing Seams of Resilient Flooring Products by the Heat Weld Method*).

3.1 Preparing Seams for Heat Welding

a) The flooring seams must be flat on both sides to achieve a strong and aesthetically pleasing weld.

b) Seams are fitted using an underscriber or may be cut with a seam cutter for heat welding. Set the underscriber to produce a net fit maximum 1/32 in (1 mm) gap. Seams can be routed with an electrical groover or by hand using a straightedge and hand groover. ***CAUTION: Specific seam gap must be accurate to leave proper space for the guide of the electrical groover.*** If you're using an underscriber, trim off material at scribe mark with a hook knife. Roll seam area lightly, using a sectional roller or steel hand roller; gap must be even to ensure a proper heat welded seam**.**

c) Head/end seams are treated following the same recommendations as for the side seams. However, please note that material wound up at the inside of a roll may require the end to be back rolled to help relax any curling. Apply weights to the seams (sandbags) to relax curling.

3.2 Seam Grooving

a) Before an electric grooving machine can be used, each end of the seam must be hand grooved with the hand grooving tool, covering a distance of about 6 in (15 cm) to 8 in (20 cm). ***CAUTION: It is highly recommended that a trial run be made on two pieces of scrap flooring fastened with double-sided tape (to simulate a seam) before grooving actual seams, allowing you to properly set up for the task.*** Set blade depth equal to 2/3 of the material or wear layer thickness flooring seams must be flat on both sides to achieve a strong and aesthetically pleasing weld.

b) Seams can be routed with an electrical groover or by hand using a straightedge and hand groover. ***WARNING: Never adjust the blade when machine is turned on or plugged into an electrical outlet.*** Place the grooving machine on floor in the area that was hand grooved, lining up the front guide and the back wheel in the groove. Turn on the machine and begin carefully pushing it along the seam (do not apply excessive pressure). Inspect the depth of the groove after a few feet of operation and adjust if necessary. Use only the tapered type of blade in the electric router. The width of the groove should equal approximately 2/3 of the width of the rubber weld rod itself. Mondo rubber weld rod is typically 4 mm in thickness.

c) Routed seams must remain free of dust/dirt, adhesive and any other foreign particles before they are heat welded. Seams that cannot be heat welded the same day should be protected to keep them clean; reinspect them upon return to the jobsite to confirm cleanliness.

3.3 Heat Welding Procedure

a) Verify that the weld rod received on the job site corresponds to the specified color and matches with the corresponding specified flooring.

b) Ensure routed seams are free of dirt, adhesive or any other foreign particles before you begin heat welded. Clean seam area thoroughly with a vacuum cleaner (or soft brush).

c) Preheat the welding gun (follow manufacturer's instructions as brands may differ). To determine the best temperature setting to use and perfect welding pace, practice on a piece of scrap flooring until you are comfortable and satisfied with the results. Adjust as needed.

d) Cut a big enough length of welding rod for you to be able to seal about half of the seam's length.

e) Fasten a 5/32 in (4 mm) nozzle to the tip of the heat welding gun.

f) Position excess welding rod piece so that it will not be in your way and interfere with the application. Insert welding rod approximately 3 in (7.6 cm) out through the hole of the welding nozzle. Hold the extended welding rod piece and immediately begin sealing the seam. The proper angle for heat welding is achieved when the tip of the welding nozzle is parallel to the flooring and not tilted to the right or left side of the seam. ***WARNING: Parts of the heat welding gun may get extremely hot. Do not touch the nozzle or barrel of welding gun to avoid burns.***

g) Pull the welding gun towards you, allowing the welding rod to feed through the nozzle. A slight melting (small bead) of the welding rod on each side of the seam indicates the proper angle and speed. Approximately 2/3 to 1/2 of the welding rod thickness will bond in the seam; the excess will be trimmed off when cooled. ***CAUTION: If your pace is too fast, you'll get poor adhesion of the weld to the seam; if your pace is too slow, you'll completely melt the rod and will encounter difficulties with skiving/trimming afterwards.***

h) Continue welding the seam up to the end of this first piece of cut rod. Then, using your trim knife, trim off approximately 3 in (7.6 cm) at the end of the welded rod flush with the flooring's surface. This will allow for an easy overlap and proper transition with the second piece of weld rod, easily fusing the remaining seam length.

i) Cut another length from the spool of welding rod that is equal to the remaining half length of the seam. Start from the wall and work toward the center, overlapping approximately 3 in (7.6 cm) to join to the first weld.

j) The weld needs to be trimmed to obtain a smooth finish. Trimming of the weld is accomplished in two steps:
   i. Step 1 – Removing excess. While the weld is still warm, attach the trim plate to your quarter moon trim knife and remove 2/3 of the weld.
   ii. Step 2 – Smoothing out. Once the weld has completely cooled, use just your quarter moon trim knife, without the trim plate, and carefully remove the remaining weld material protruding above the surface of the flooring seam. With a steady hand, apply moderate and continuous pressure while making the final trim.

k) After the final trim, thoroughly inspect the seam. Re-trim any high areas, maneuvering to avoid damage to the flooring's surface and/or seam edges. Any areas where the weld bead shows evidence of an incomplete seal inside the seam, you must immediately correct and re-weld the seam.

DEW POINT

The dew point is the temperature at which air is saturated with water vapor and moisture will condense on a surface.

The adhesive must not be applied unless the substrate surface temperature remains a minimum of 10 degrees Fahrenheit (5 degrees Celsius) above the dew point.

Table 1. Example of a Dew Point Reference Table (in Fahrenheit)

Temperature	Relative Humidity						
	65%	60%	55%	50%	45%	40%	35%
85°F	72	69	67	64	61	58	54
80°F	67	65	62	59	56	53	50
75°F	62	60	58	55	52	49	45
70°F	57	55	53	50	47	44	
65°F	53	50	48	45	42		

Example: if the ambient temperature is 70°F and the relative humidity is 55%, your dew point is 53°F. Installation should not occur unless the substrate's surface remains at or above 63°F (minimum of 10 degrees Fahrenheit above the calculated dew point) for the duration of the installation, as well as for 36 hours post-installation.

Table 2. Example of a Dew Point Reference Table (in Celsius)

Temperature	Relative Humidity						
	65%	60%	55%	50%	45%	40%	35%
29.4°C	22.2	20.5	19.4	17.7	16.1	14.4	12.2
26.6°C	19.4	18.3	16.6	15.0	13.3	11.6	10.0
23.8°C	16.6	15.5	14.4	12.7	11.1		
21.1°C	13.8	12.7	11.6	10.0			
18.3°C	11.6	10.0					

Example: if the ambient temperature is 21.1°C and the relative humidity is 55%, your dew point is 11.6°C. The installation should not occur unless the substrate's surface remains at or above 16.6°C (minimum of 5 degrees Celsius above the calculated dew point) for the duration of the installation, as well as for 36 hours post-installation.

CAUTION: DEW POINT REFERENCE TABLES ARE BEING PROVIDED ONLY AS GUIDE EXAMPLES. MANY DEW POINT TABLES AND CALCULATORS ARE AVAILABLE ONLINE FOR CONSULATION; INSTALLERS ARE RESPONSIBLE FOR MAKING THEIR OWN VERIFICATIONS AND CALCULATIONS, RESPECTING INSTALLATION REQUIREMENTS AT ALL TIMES. MONDO WILL NOT ACCEPT LIABILITY WHATSOEVER FOR ANY MISCALCULATIONS REGARDING CLIMATIC CONDITIONS, INCLUDING BUT NOT LIMITED TO DEW POINTS.

DISCLAIMER

These instructions conform to commonly accepted techniques for the installation of resilient flooring, including installation of Mondo electrostatic dissipative rubber flooring. However, Mondo will not accept any liability whatsoever for any incorrect implementation of these instructions nor for any failure of grounding strips and circuits, equipment, paints and primers, patching and leveling compounds, moisture mitigation products, adhesives or any other product not manufactured by Mondo but that may be referenced in these instructions, nor for any adverse handling, climatic or environmental conditions that may affect the installation and/or the performance of these specified products.

The enclosed guidelines and recommendations are provided for general guidance only. Mondo assumes no responsibility neither for actual work performed nor for loss or damage that may result from the use of this information due to variations of processing or working conditions outside of our control. Users are advised to confirm suitability of conditions and products by performing their own tests and verifications.

Mondo's standard warranty only extends to the quality and performance of its manufactured flooring products.

Should you have any concerns or be unsure about installation conditions or procedures, please consult Mondo's Technical Department:

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